

DESIGN AND FABRICATION CLOTHES RACK

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SUPERVISOR'S DECLARATION

I hereby declare that I have checked this project report and in my opinion this project is satisfactory in terms of scope and quality for the award of Diploma in Mechanical Engineering.

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STUDENT'S DECLARATION

I hereby declare that the work in this report is my own except for quotations and summaries which have been duly acknowledged. The report has not been accepted for any degree and is not concurrently submitted for award of other degree.

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ABSTRACT

Clothes rack is very important for people to hang their clothes. Every clothes rack has different use and specific use. There are some common problem can be detect at the clothes rack nowadays such as don't have stopper, clothes easy to fall , heavyweight, only suitable for certain clothes, need many wheels, hard to cornering, not suitable for small area, cannot hang many things, unstable for heavy clothes like jacket, hard to manufacturer and expensive material. To reduce this problem, one new clothes rack will be development that have multi function and has not limited to do another task or job.

This project is about design and fabricates a new product of clothes rack that has multifunction. The clothes rack multi use and easy assemble. It's also must reduce the disadvantages of the clothes in the current market like have stopper, adjustable and easy manufacturer.

As the conclusion, this project had achieves its entire objective successfully. This project was done around thirteen week included almost all steps of the report such as literature review, design, fabrication process and others.

ABSTRAK

Rak pakaian sangat penting bagi manusia untuk menyangkut baju. Setiap rak pakaian ada kegunaan yang tersendiri. Terdapat pelbagai masalah biasa yang boleh didapati pada rak pakaian seperti tidak mempunyai penahan, pakaian mudah terjatuh, berat, perlukan banyak tayar, susah untuk membelok, tidak sesuai untuk kawasan sempit, tidak sesuai untuk sesetengah pakaian, tidak boleh menyangkut banyak baju, susah untuk dihasilkan dan bahan mentah yang mahal. Untuk mengurangkan masalah ini, satu produk baru akan dihasilkan dan ia mempunyai pelbagai fungsi serta tidak terhad kepada satu kegunaan sahaja.

Projek ini bertujuan untuk menghasilkan rak pakaian yang mempunyai pelbagai fungsi iaitu mudah di bawa ke mana sahaja dan mudah dipasang. Produk ini juga mestilah lebih baik daripada produk yang berada dipasaran semasa seperti mempunyai penahan dan mudah dihasilkan.

Sebagai kesimpulan, projek ini telah mencapai objektif dengan jayanya. Projek ini telah dijalankan selama tiga belas minggu mengikut langkah-langkah yang terdapat dalam laporan seperti kajian produk, rekaan, penghasilan dan sebagainya.

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CHAPTER 1

INTRODUCTION

1.1 PROJECT BACKGROUND

Now day, clothes rack become the common facilities for human .They are many type of clothes rack in the world wide market like Rolling Clothing Rack, Double Bar H-Rack, Heavy Double Bar Rack and others. The main purpose of clothes rack invention is to help Muslim to put their clothes, Copiah, blazer, coat and prayer mat in the suitable place. Its can reduce space, more flexible, easy to move, more cheaper than others in the market.

As the result for the needed in community there are various type of portable or multi use clothes rack had been invented. Clothes rack has a multi function that can be use to hang various types of clothes, easy to move, can use in small area. It also comes in much type of size and design. From the analysis of advantages and disadvantages of the clothes rack in the current market, one new product will be developed to follow the specific and customer need.

1.2 PROBLEM STATEMENT

Clothes Rack is important for human to hanging their clothes. They are many types clothes rack like Double Bar H-Rack, Heavy Duty Double Bar Rack with V-Brace, Rolling Clothing Rack with Storage Shelf, Compact Rolling Clothing Rack with extensions, Display Clothing Rack with 2 Arms. Every Clothes Rack have different function and specific use. It's limited specification in design and use age. There are some common problem in can be detect in clothes rack such as don't have stopper, clothes easy to fall, need more space, old design, only for hanging clothes, very expensive product, heavy to carry and easy to corrosion to reduce this problem, one new clothes rack will be development that have multi function

1.3 PROJECT OBJECTIVE

The objective is to practice the knowledge and skill that had been gathered using academic research to born an engineer that have enough knowledge and skill.

1.3.1 SPECIFIC OBJECTIVE

The specific objectives of this product are:

- i. To design a good, suitable and user friendly clothes rack.
- ii. To fabricate the structure which can be suitable use in Masjid

1.4 PROJECT SCOPE

This project is about design and fabricates a new product of clothes rack that has multi function. The clothes rack must have good design, suitable for masjid, multi use and easy assemble. Its also must reduce the disadvantages of the clothes rack in the current market like have stopper, adjustable and easy manufacturer.

- (i) Clothes rack must easy to move
- (ii) To hang kopiah, songkok, prayer mat, blazer, kain pelekak and jacket.
- (iii) Clothes rack must have multi use like can be hang kopiah, blazer, kain pelekak and more.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

Nowadays, people use clothes rack to hang the clothes, tie, blazer and more. They are many type of clothes rack in the market like Rolling Clothing Rack, Double Bar H-Rack, Heavy Double Bar Rack and others. Many clothes have been develop by specific job and design which can be use only to hang blazer, prayer mat, clothes, fez and more.

The purpose of this chapter is from the existing product, function of a new product of clothes rack can be developing according to the needed in the society. These new Clothes rack are being developed based on the advantages and disadvantages of the existing product in the current market. The new product of clothes rack also will be developed according to the objective of the project which is to design a good suitable and user friendly clothes rack and can donate or as a gift to masjid.

2.1.1 Clothes

A feature of nearly all modern human societies is the wearing of clothing or clothes, a category encompassing a wide variety of materials that cover the body. The primary purpose of clothing is functional, as a protection from the elements. Clothes also enhance safety during hazardous activities such as hunting and cooking by providing a barrier between the skin and the environment. Clothes incidentally also provide a hygienic barrier, keeping toxins away from the body and limiting the transmission of bacteria and viruses.

Clothes also have important social and cultural functions. A uniform, for example, may identify civil authority figures, such as police and army personnel, or it may identify team or group or even political affiliations. In most societies, clothing is an aspect of norms of the society, in relation to standards of modesty, religious practices and social status. Clothing may also function as a form of adornment and an expression of personal taste or style. (John Travis,2003)

2.1.2 Prayer mat

Prayer mat is a piece of fabric to keep the worshipper clean and comfortable during the *sujud* (prostration to God) of salah (prayer). Figure 2.1 show example of prayer mat. The prayer mat has a very strong symbolic meaning and traditionally taken care of in a holy manner. Prayer rugs are usually made in the towns or villages of the communities who use them and are often named after the origins of those who deal and collect them. The exact pattern will vary greatly by original weavers and the different materials used. Some may have patterns, dyes and materials that are traditional/native to the region in which they were made. Typical prayer rug sizes are approximately 3 ft × 5 ft (0.91 m × 1.5 m) - 4 ft × 6 ft (1.2 m × 1.8 m), enough to kneel above the fringe on one end and bend down and place the head on the other. (Abbo Muhammed Samir, 2005)



Figure 2.1: Prayer mat,

Source: Bazaar perantau.com (2009)

2.1.3 Songkok

A songkok is a traditional Malay cap in the shape of a truncated cone, almost always made of black or embroidered felt, cotton or velvet. It is widely worn in Malaysia, Singapore, Indonesia, Brunei, the southern Philippines and southern Thailand, mostly among Muslims. It is sometimes called as *peci* in some parts of Indonesia and *kopiah* in Mindanao. It is ordinarily worn with the traditional outfit for Malay men. It is also worn by male Malays in formal situations such as wedding feasts, funerals or festive occasions such as the Muslim Eid ul-Fitr and Eid al-Adha and came to be associated with Islam in Malaysia. However in Indonesia, it is worn as part of the local dress and is also worn by non-Muslims. (Rozan yunus, 2007)

2.2 TECHNICAL REVIEW

2.2.1 Technical Drawing

Technical drawing, also known as drafting, is the academic discipline of creating standardized technical drawings by architects, interior designers, drafters, design engineers, and related professionals. Standards and conventions for layout, line thickness, text size, symbols, view projections, descriptive geometry, dimensioning, and notation are used to create drawings that are ideally interpreted in only one way.

A person who does drafting is known as a drafter. In some areas this person may be referred to as a drafting technician, draftsperson, or draughts person. This person creates technical drawings which are a form of specialized graphic communication. A technical drawing differs from a common drawing by how it is interpreted. A common drawing can hold many purposes and meanings, while a technical drawing is intended to concisely and clearly communicate all needed specifications to transform an idea into physical form. (Jefferis, 2005)

2.2.2 Product A

Figure 2.2 show this rolling clothing rack folds down to 5" high to fit in the trunk of a car, but is strong enough to hold up to 250 Lbs. Perfect for on the road salespeople or in the home as a standing coat rack. The clothing rack can telescope up from 56 1/2" to 66", and telescope out from 51" to 74". It comes with 4" ball bearing casters and is made with 1" outside diameter chrome tubing. It's available with an optional display screen/bottom shelf. The base is 22 1/4" wide x 48" long.



Figure 2.2 Product A

Source : IKEA (2009)

2.2.3 Product B

Figure 2.3 show that the Product B also welded construction. Product dimensions are width: 23 5/8 " height: 75 1/4 ". For care instruction, wipe clean using a damp cloth and a mild cleaner and wipe dry with a clean cloth. These products are making by Steel, Pigmented epoxy/polyester powder coating. Advantages of this product are new design added, more space uses and lightweight. Disadvantages of this product are less clothes can hang and more expensive.



Figure 2.3 Product B

Source: IKEA (2009)

2.2.4 Product C

Cramped for space in a dorm or little apartment? This rack may be your new best friend. Designed to maximize every inch, stay sturdy, and offer two hanging options, this new Split Rail Z-Rack is like adding a second closet to a room. We can't help with the final exam cram session, but we can give you garment hanging space. That's the long and short of it. Figure 2.4 show the product C.



Figure 2.4 Product C

Source : IKEA (2009)